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10/573,261	03/23/2006	Tetsunori Mitsuoka	1248-0862PUS1	3033
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EXAMINER DO, ANDREW V				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

### Office Action Summary

**Application No.**

10/573,261

**Applicant(s)**

MITSUOKA ET AL.

**Examiner**

ANDREW V. DO

**Art Unit**

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-22 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/8500)  
Paper No(s)/Mail Date 9/7/2006, 6/23/2006, 3/23/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because:
  - Fig. 4: Reference numeral **84** is not in the specification.
  - Fig. 6: Pressure roller should have reference numeral **32** not **31** as shown.
  - Figs. 10-12: Reference numeral **68** is not in the specification. Reference numeral **68** should be **78** to agree with the other drawings and specification.
  - Journal portion **31a** on page 45 is not shown in the drawings.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore,

"the potential given member also functions as a heating member including a second heating means for heating the surface of the pressure member." (Claim 13)

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The abstract of the disclosure is objected to because "electric filed" should be correct to read "electric field". Correction is required. See MPEP § 608.01(b).
4. The disclosure is objected to because of the following informalities:
  - Page 9, second paragraph: "electric filed" should be "electric field".
  - Page 33, last paragraph: "an light scanning..." should be "a light scanning" or the like.
  - Page 37, second paragraph: "image forming process *UN*" is unclear and examiner believes applicant is attempting to refer to the "image forming process unit".
  - Page 40, last paragraph: "A large *mount* of aluminum..." should be corrected to read "A large *amount* of aluminum..." or the like.

- Page 51, second and last paragraphs mix the fixing device and transfer device in their use and reference numerals.
- Page 56: "bias voltage **94**" should be corrected to read "bias *device* **94**".
- Page 58: missing space between **31** and "partially".
- Page 62: "halogen lamp **64**" should be "halogen lamp **77d**".
- Page 64: "printing medium **92**" in the first paragraph should be "printing medium **91**".
- Page 73: "fixing bias voltage **121**" uses reference numeral for fixing device **121** (page 70 last paragraph).

Appropriate correction is required.

### ***Claim Objections***

5. Claim 1 is objected to because of the following informalities: "electric filed" should be "electric field". Appropriate correction is required.
6. Claim 9 is objected to because of the following informalities: "surface insulating resistive layer" lacks proper antecedent basis. For the purpose of filing a complete first action, the examiner has read the previous as being "the surface insulating layer".
7. Claim 16 is objected to because of the following informalities: "first bias voltage applying means" and "second bias voltage applying means" lack proper antecedent basis.
8. Claim 19 is objected to because of the following informalities: "electric filed" should be "electric field".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. **Claim 13** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant claims:

“...the fixing member includes first heating means for heating a surface of the fixing member; and the potential given member also functions as a heating member *including* second heating means for heating the surface of the pressure member...”

While the specification states:

“That is, the fixing device is configured such that the surface of the pressure member is heated by the second heating member. In this configuration, since the potential given member *also functions as* the second heating member, it is possible to simplify the arrangement around the pressure member...”

(Paragraph 70)

It does not teach one of ordinary skill in the art how to make a potential given member that also functions as a heating member including a second heating means for heating the surface of the pressure member.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. **Claim 13** is rejected under 35 U.S.C 112, second paragraph, as the examiner cannot ascertain what is encompassed by the claimed "second heating means".

#### ***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. **Claims 1-9, and 19-21** are rejected under 35 U.S.C. 102(b) as being anticipated by Nanataki et al. (US 2001/0016132).

**Regarding claims 1, 19, and 21**, Nanataki et al. teaches an image forming apparatus comprising a fixing device (fixing apparatus, Fig. 3) including: a fixing member (fixing roller 1, paragraph 5) which is in contact with an unfixed image formed on a printing medium (recording medium, paragraph 5) with a developer ; and a pressure member (pressure roller, paragraph 5) which is in contact with the fixing member 1 (Fig. 3), the fixing member 1 and the pressure member 2 sandwiching the printing medium so as to feed the printing medium, so that the unfixed image on the

printing medium is fixed on the printing medium (paragraph 5), the fixing device further including holding electric field generating means (voltage applying means) for generating a holding electric field which is an electric field in a direction for holding a reverse polarity developer on the printing medium (the bias applied to the fixing device is the same as the developer (claim 10) and it is therefore clear that the bias is opposite that of the reverse polarity developer. It is inherent that charges of the same polarity repel and opposite polarities attract, therefore it is clear that the bias applied to the fixing apparatus would attract the reverse polarity developer to the printing medium), the reverse polarity developer having a polarity opposite to a polarity of the developer which forms an image on the printing medium.

**Regarding claims 2, 3, and 20**, Nanataki et al. also teaches a fixing device wherein said holding electric field generating means (voltage applying means) includes bias voltage applying means for applying a bias voltage (claim 1), which generates the holding electric field, to at least one of the fixing member and the pressure member (rotary member, claim 1).

**Regarding claim 4**, Nanataki et al. also teaches a fixing device wherein said bias voltage applying means applies as the bias voltage a voltage, having a same polarity as the reverse polarity developer, to the pressure member (in paragraph 73, Nanataki et al. teaches an embodiment where a bias of polarity opposite to that of the toner (developer used to create the image) is applied to the pressure roller. It is clear that if the polarity is opposite that of the developer then it is the same polarity as the reverse polarity.



**Regarding claim 5**, Nanataki et al. also teaches a fixing device wherein a time it takes for a potential to decay is 0.2 second or longer, the potential being produced by the bias voltage on a surface of a member to which the bias voltage is applied. Figures 11 and 12 show the "decay" of the surface potential of the fixing roller. Figure 12 teaches the "decay" in surface potential as the recording medium enters and exits the nip portion between the pressure and fixing roller (paragraph 60). Figure 11 shows the "decay" of the surface voltage of a fixing roller over 100 sheets fed (which clearly take longer than 0.2 seconds).

**Regarding claim 6**, Nanataki et al. also teaches a fixing device wherein an absolute value of a current is 0.05  $\mu\text{A}$  or more and 150  $\mu\text{A}$  or less (paragraph 38), the current flowing when the bias voltage is applied and flowing in a member to which the bias voltage is applied (paragraph 38).

**Regarding claim 7**, Nanataki et al. also teaches a fixing device wherein the fixing member **19** includes a conductive core bar (aluminum core member **16**), an intermediate layer (primer layer **17**) on the conductive core bar, and a surface insulating layer (pure fluororesin layer **18**) on the intermediate layer **17** (paragraphs 35 and 38, Fig. 3).

**Regarding claim 8**, Nanataki et al. also teaches a fixing device wherein the surface insulating layer **18** of the fixing member **19** has a surface resistivity of  $10^{14} \Omega \cdot \text{cm}$  or higher (paragraph 64); and said bias voltage applying means applies the bias voltage to the fixing member **19** (Fig. 13).

**Regarding claim 9**, Nanataki et al. also teaches a fixing device wherein the surface insulating layer **18** of the fixing member **19** has a volume resistivity higher than  $10^{13} \Omega\text{-cm}$  (paragraph 64); and said bias voltage applying means applies the bias voltage to the fixing member **19** (Fig. 13).

15. **Claims 1, 2, 10, 12, 15, 16, and 21-22** is rejected under 35 U.S.C. 102(b) as being anticipated by Ohtsuka et al. (US 5,331,385).

**Regarding claims 1, 2 and 21**, Ohtsuka et al. teaches an image forming apparatus comprising a fixing device including: a fixing member (fixing roller **1**) which is in contact with an unfixed image formed on a printing medium (recording material) with a developer (col. 3 lines 35-40); and a pressure member (pressing roller **2**) which is in contact with the fixing member **1**, the fixing member **1** and the pressure member **2** sandwiching the printing medium so as to feed the printing medium, so that the unfixed image on the printing medium is fixed on the printing medium (col. 3 lines 35-40, Fig. 1), the fixing device further comprising holding electric field generating means (power source **19**, Fig. 2) for generating a holding electric field which is an electric field in a direction for holding a reverse polarity developer on the printing medium (as stated above, the bias is created to be the same as the toner (col. 4 lines 45-48) which would clearly attract any reverse polarity toner on the non-imaging surface of the printing medium to be attracted towards the printing medium), the reverse polarity developer having a polarity opposite to a polarity of the developer which forms an image on the printing medium (Fig. 5).

**Regarding claim 10**, Ohtsuka et al. also teaches a fixing device wherein the pressure member **2** includes a conductive core bar (electrically conductive core metal **17**, Fig. 10A) , an insulating elastic layer (silicone sponge layer **15**, Fig. 10A) on the conductive core bar **17**, an intermediate layer (conductive silicone rubber layer **16**, Fig. 10A) on the insulating elastic layer **15**, and a surface resistive layer (conductive tube **18**, Fig. 10A) on the intermediate layer **16**; a potential given member (wire that connects the power supply **19** to the pressure member **2**, Fig. 14) is provided on a surface of the pressure member **2**; said bias voltage applying means **28** (Fig. 16) applies the bias voltage to the potential given member; and the bias voltage is applied through the potential given member to a surface of the pressure member **2** or near the surface of the pressure member **2** (Fig. 16).

**Regarding claim 12**, Ohtsuka et al. also teaches a fixing device wherein the surface resistive layer **18** of the pressure member **2** has a volume resistivity of  $10^5 \Omega \cdot \text{cm}$  or higher (col. 3 lines 60-65); and said bias voltage applying means applies the bias voltage to the pressure member **2** (Fig. 14).

**Regarding claim 15**, Ohtsuka et al. also teaches a fixing device wherein the potential given member is a conductive electrode member (wire connecting power supply **19** to the pressure member **2**) or a semiconductive electrode member.

**Regarding claim 16**, Ohtsuka et al. also teaches a fixing device wherein the bias voltage is applied from first bias voltage applying **19** means to the fixing member **1** (Fig. 17); and the bias voltage is applied from second bias voltage applying means **28** to the

potential given member (wire connecting second bias voltage applying means **28** to pressure member **2**, Fig. 17).

**Regarding claim 22**, Ohtsuka et al. also teaches an image forming apparatus further comprising a transfer device (image transfer roller **27**, Fig. 8) which is provided upstream of the fixing device in a feeding direction of the printing medium (Fig. 8) and which transfers a developer image from a developer image carrier (photosensitive drum) to the printing medium, the transfer device using a contact transfer method in which the transfer device is in contact with the developer image carrier (Fig. 1 and 8, col. 3 lines 20-24).

### ***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nanataki et al. ('132) in view of Kobaru et al. (US 6,438,348).

Nanataki et al. teaches, as stated above, a fixing device wherein the surface insulating layer **18** of the fixing member **19** has a surface resistivity of  $10^{14} \Omega\text{-cm}$  or higher (paragraph 64); and said bias voltage applying means applies the bias voltage to the fixing member **19** (Fig. 13). Nanataki et al. also teaches said bias voltage applying means applies the bias voltage to the pressure member **2** (paragraph 73).

Nanataki et al. is silent as to a fixing device wherein the surface resistive layer of the pressure member **2** has a surface resistivity of  $10^7 \Omega\text{-cm}$  or higher.

Kobaru et al. teaches a fixing apparatus wherein the surface resistivity of the pressurizing roller **2** is  $10^7 \Omega\text{-cm}$  or higher (col. 1 lines 51-60).

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the image forming apparatus of Nanataki et al. to have included the pressure member with a surface resistivity of  $10^7 \Omega\text{-cm}$  or higher in order to ensure that the pressure member has the appropriate pressure resistance for fixing the unfixed developed image while being able hold the correct biasing potential to prevent offsets (Kobaru et al. col. 1 lines 51-60).

18. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsuka et al. ('385).

Ohtsuka et al. teaches everything recited above and the use of an electrically discharging brush **21** as a means for biasing the pressure member **2** (Fig. 6).

Ohtsuka et al. is silent as to wherein the potential given member (electrically discharging brush **21**) is a cleaning member for removing the developer remaining on the surface of the pressure member **2**.

It would have been obvious, if not clear, to one of ordinary skill at the time of invention that the electrically discharging brush **21** of the pressure member **2** can be used as a cleaning member for removing the developer remaining on the surface of the pressure member **2** as it clearly makes physical contact with the pressure member **2**

and would therefore be capable of removing developer on the surface of the pressure member 2.

19. **Claims 17 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtsuka et al. ('385) in view of Takeuchi (US 2002/0186981).

**Regarding claim 17**, Ohtsuka et al. teaches everything recited above and a fixing device further comprising at least one temperature detecting element (temperature detector 9) which detects surface temperatures of the fixing member 1, the pressure member 2, and the heating member (heater 10) (col. 1 lines 27-31).

Ohtsuka et al. is silent as to the temperature detecting element 9 including an insulating film layer and a heat-resistant release layer on a heat-receiving surface of the temperature detecting element and a protective layer on a surface opposite to the heat-receiving surface, or any specifics of the configuration of the temperature detecting element 9.

Takeuchi teaches a fixing device comprising at least one temperature detecting element (temperature sensor 6, Fig. 2) which detects surface temperatures of the fixing member 1, the pressure member 8, and the heating member 5a-b, the temperature detecting element 6 including an insulating film layer (layer 16, Fig. 2) and a heat-resistant release layer (glass fiber sheet 15, Fig. 2) on a heat-receiving surface of the temperature detecting element 6 and a protective layer (protective member 13, Fig. 2) on a surface opposite to the heat-receiving surface.

It would have been obvious to one of ordinary skill in the art at the time of invention to have configured the temperature detecting element of Ohtsuka et al. in a

similar manner as the temperature detecting element of Takeuchi in order to ensure accurate temperature measurements and preventing damage to the temperature sensor in the temperature detecting element from the frictional force of rubbing against the fixing member.

**Regarding claim 18**, Ohtsuka et al. as modified above by Takeuchi also teaches a fixing device wherein the insulating film layer **16**, the heat-resistant release layer **15**, and the protective layer **13** of the temperature detecting element **6** are extended to a housing of the temperature detecting element so as to cover an elastic member (element **12**, Fig. 2) of the temperature detecting element **6**.

### ***Conclusion***

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Okuda et al. (US 5,253,024) teaches a fixing apparatus with a pair of rotary members for conveying material with a non-fixed toner image, and a means for preventing toner offset.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW V. DO whose telephone number is (571)270-3420. The examiner can normally be reached on M-F 7:30-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on (571) 272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David M Gray/  
Supervisory Patent Examiner, Art Unit 2852

AVD